DPC-11

Universal Programming Interface for Hitec Programmable Servos

DPC-11 Operation Manual

Table of Contents

Section 1

Introduction 2

Section 2

Installation 4

Software Installation 4

Driver Installation 7

Section 3

Operation **9**

DXXX Series Servo Programming **9**

Introduction 9

Connections 10

Testing 11

Programming 13

File Operations 18

HSB-9XXX Series Servo Programming **19**

Introduction 19

Connections 20

Testing 21

Programming 22

File Operations 26

HS-5XXX & HS-7XXX Series Servo Programming **28**

Introduction 28

Connections 29

Testing 30

Programming 31

File Operations 35

DPC-11

UNIVERSAL PROGRAMMING INTERFACE FOR HITEC PROGRAMMABLE SERVOS

Introduction

⚠**WARNING –** Failure to follow these instructions can result in an undesired operation of your servo. Please read these instructions before attempting to program your servos.

Section 1

Introduction

Congratulations on your purchase of the DPC-11 Universal Programming Interface for Hitec programmable servos. The DPC-11 allows you to customize the parameters of our programmable DXXX, HSB-9XXX, HS-7XXX and HS-5XXX series servos to better suit your application. Additionally, you can test your settings to make sure you achieve the desired results before installing the servos in your aircraft or vehicle.

Package Contents

- DPC-11 PC Programming Interface
- This manual

Additional Items Needed for Usage

- USB 2.0 Compliant Cable Type A to Mini B
- 4.8 – 7.4v Battery
- PC running Microsoft Windows ® [XP, 7, 8 or 10]

Programmable Features

The chart below indicates what you can program in each servo series.

Function Status	D Series	HSB-9XXX/7XXX	HS-5XXX/7XXX
End Point Adjustments	X	X	X
Direction	X	X	X
Fail Safe	X	X	X
Dead Band	X	X	X
Speed (Slower)	X	X	X
Soft Start Rate	X	X	
Overload Protection	X		X
Resolution			X
Data Save/Load	X	X	X
Program Reset	X	From File	X

⚠**WARNING –** DO NOT attach the DPC-11 until all software installation steps are completed for your operating system.

Basic Set-Up Instruction

1. Download the DPC-11 software from www.hitecrcd.com.
2. Follow the instructions included with the download and install the DPC-11 software.

Hitec Customer Service

Help is available from the Hitec office through phone support and e-mail inquiries. Our US office is generally open Monday thru Friday, 8:00AM to 4:30PM PST. These hours and days may vary by season. Every attempt is made to answer every incoming service call.
Should you reach our voicemail, leave your name and number and a staff member will return your call.

Hitec Website

Plan to visit the Hitec website, www.hitecrcd.com on a regular basis. Not only does it contain specs and other information about the entire Hitec product line, our website's FAQ pages hold valuable information and updates about our programmable servos

The Online Community

One of the benefits of the extensive R/C online community is the vast wealth of archived knowledge available. Hitec sponsors forums on most of the popular R/C websites where a Hitec staff member or representative tries to answer all manner of product related questions. Bringing together strangers with common interests is proving to be one of the greatest gifts of the internet. If past history is any guide to the future, forums with a brushless servo focus are certain to develop and many of those will no doubt prove invaluable.

Warranty and Non-Warranty Service

All Hitec products carry a two year from date-of-purchase warranty against manufacturer's defects. Visit www.hitecrcd.com/warranty to see our complete warranty information. If your product needs servicing or repair, you must return the product to:

Hitec RCD USA
12115 Paine St
Poway CA, 92064

Our trained and professional service representatives will determine if the item will be repaired or replaced. To provide all the necessary information we need to administrate your repair, visit our website at www.hitecrcd.com. Download and complete the repair form and send in your item for repair.

DPC-11

Universal Programming Interface for Hitec Programmable Servos

Installation: Software

⚠**WARNING –** Do not plug the DPC-11 in to your computer until told to do so later in this manual.

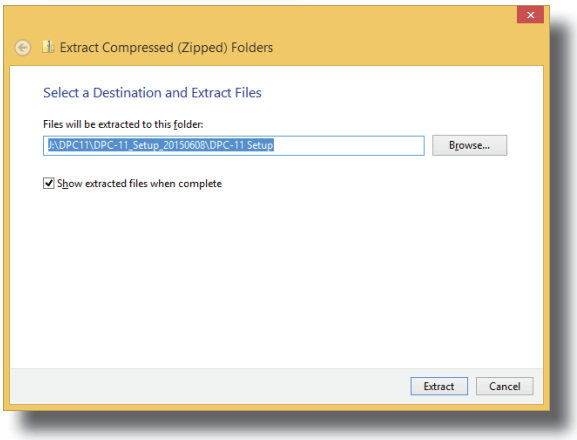
Section 2

Software Installation

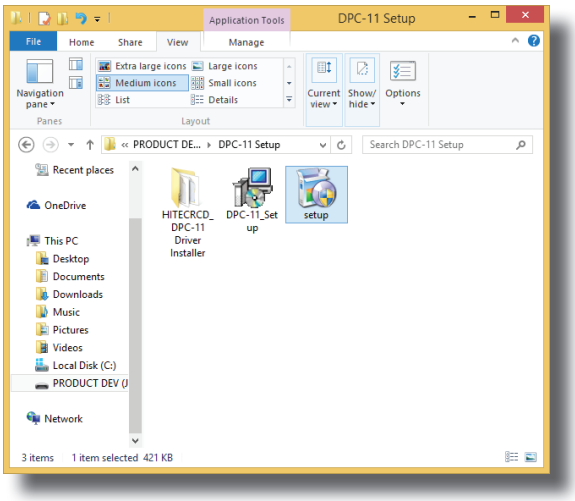
for Windows Operating Systems (Windows 7, 8 and XP)

1. Download Installation file DPC-11 32bit Install File DPC-11x86.zip from www.hitecrcd.com.

2. Right click on the file and select "Extract All." Make sure the show extracted files box is checked.

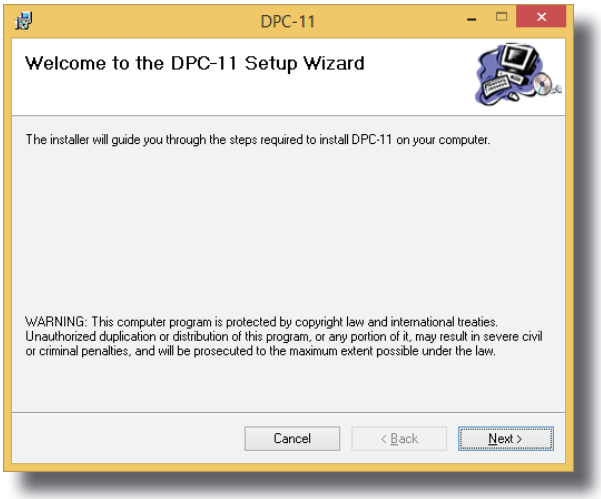


3. Now that the files have been extracted, run the file "Setup." You may be prompted by Microsoft User Account Control asking if you would like to make changes to your computer. Click "Yes" to proceed with the installation.

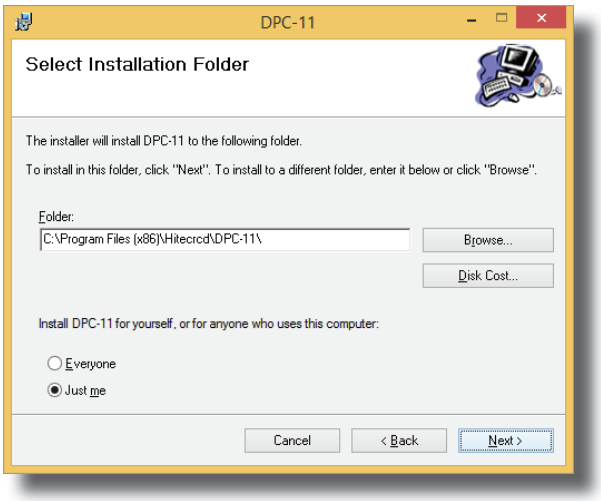


Installation: Software cont.

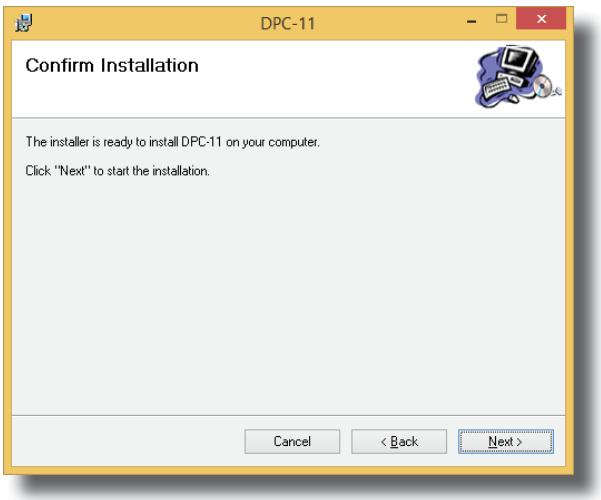
4. You are now at the DPC-11 Setup Wizard. Click on “Next” to continue.



5. You will be prompted to select an installation folder and whether or not you want all users to be able to use the DPC-11 software. It is recommended that you use the default folder. Click “Next” to continue.

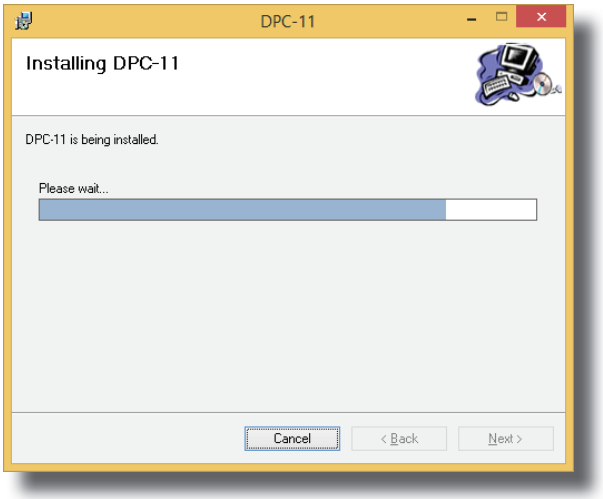


6. You are now at the “Confirm Installation” screen. Click on “Next” to start the installation.

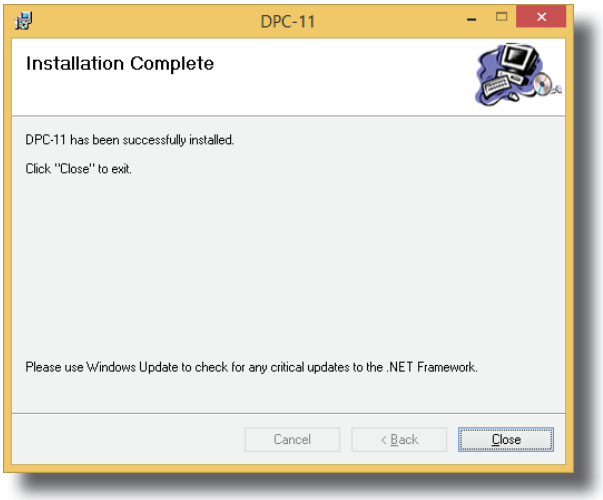


Installation: Software cont.

7. The Installing DPC-11 screen will appear and the bar will show its progress.



8. Once the installation is complete, click "Close" to exit the DPC-11 software installation program. You should now see the DPC-11 icon on your desktop.

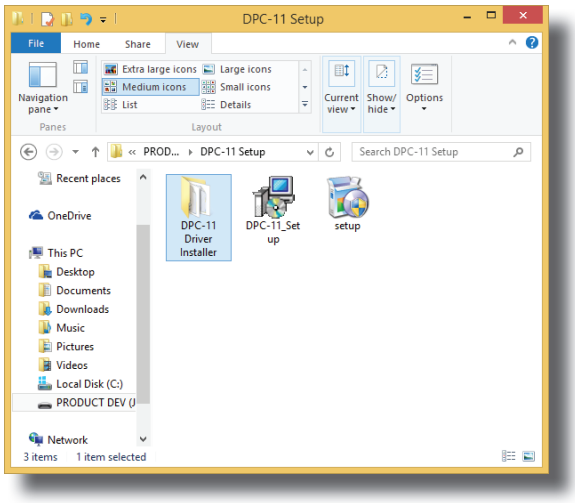


⚠**WARNING –** Do not plug in the DPC-11 until you've completed the following steps. The steps are different for 32bit and 64bit systems. Make sure you know which operating systems you are using.

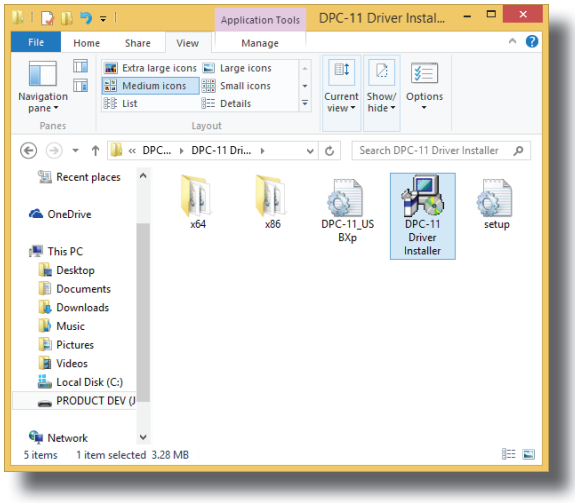
Driver Installation

for 32bit Operating Systems (Windows 7, 8 and XP)

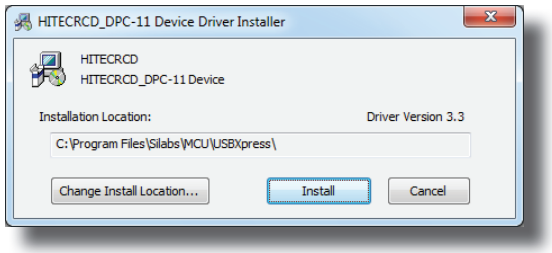
1. Go back to the folder where you extracted the installation files and open the DPC-11 Driver Installer.



2. Click on the file “Hitec BLDC Servo Interface” to begin the driver installation process.

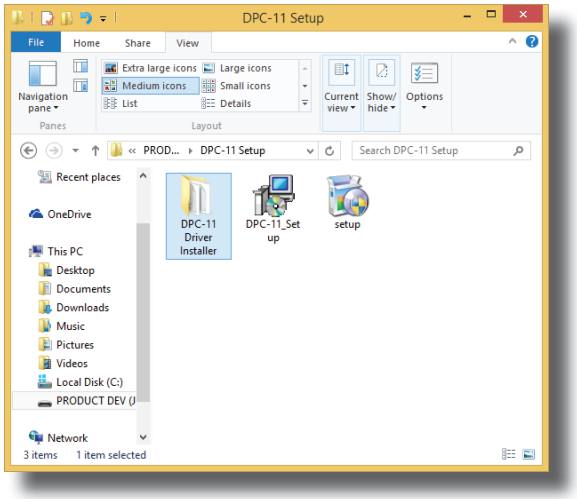


3. The next screen shows the driver version and installation directory. Click install to proceed. The installer will scan the system for existing drivers and install the most current version.



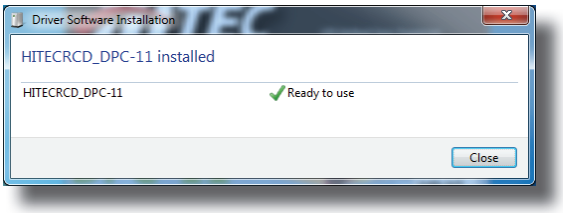
Installation: Driver cont.

4. Once installation is complete, you will see the “Success” screen. Now click “OK” to close the program.



⚠**NOTE –** It is imperative that you use a USB 2.0 compliant cable to connect your DPC-11 to your computer. Non-compliant cables will cause erratic operation or may not work at all.

5. Plug in the USB cable to your computer and then into the DPC-11. Windows should locate the driver and install it automatically.



6. Once it is installed you can launch the DPC-11 Software from the icon on your desktop.

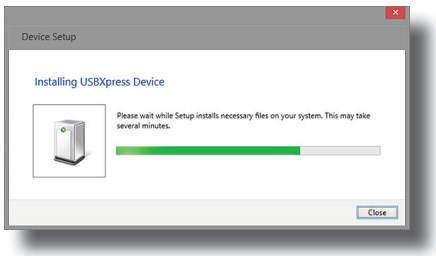
Driver Installation

for 64bit Operating Systems (Windows 7, 8, 10 and XP)

1. Plug in the USB cable to your computer and then into the DPC-11. Windows should automatically find and load the correct driver.

2. Once installed, launch the DPC-11 Software from the icon on your desktop.

⚠**NOTE –** It is imperative that you use a USB 2.0 compliant cable to connect your DPC-11 to your computer. Non-compliant cables will cause erratic operation or may not work at all.



⚠**NOTE –** If the driver does not install automatically, refer to the 32bit Installation instructions to manually install the driver.

DPC-11

UNIVERSAL PROGRAMMING INTERFACE FOR HITEC PROGRAMMABLE SERVOS

Section 3

DXXX Series Programming

Introduction

The DPC-11 Programming Software gives the user unparalleled ability to adjust the parameters of the Hitec DXXX series of Digital Programmable Servos. Additionally users can test their servos, save parameters to a file, load parameters from a file and restore the factory settings. To program your D Series servo, launch the DPC-11 software from the desktop icon and select D-Series from the startup menu.

⚠**NOTE –** If you always want the DPC-11 software to launch in D-Series Mode you can change the start window setting in the upper left hand corner of the window.

User Interface

The main screen of the D series programming interface is broken into four sections, Connection, File Operations, Testing and Programming.

Change what window is shown when launching program.

Connects or reconnects servo.

Takes you back to the main menu.

File operation section.

Testing section.

Programming section.

Test Functions

Testing a servo's function can be critical to completing a successful project. Use these tests to "burn-in" new servos or to check for broken gears and other issues. The DPC-11 is capable of performing the following tests:

1. Servo Travel using one of the following methods:
    a. Manual Positioning
    b. Automatic Sweep Positioning
    c. Step Positioning
2. FAIL SAFE programming position

Programming Functions

The following functions can be programmed into the D Series servos using the DPC-11:

1. FAIL SAFE, On or Off.
2. Direction of Rotation
3. Servo ID Number
4. Travel Speed (Slower)
5. Center, End, and FAIL SAFE Point
6. Dead Band Width.
7. Soft Start
8. Overload Protection

File Operations

In the File Operations section you can perform the following tasks;

1. Save a servo's parameters to a file
2. Load a servo's parameters from a file
3. Write the programmed information to the servo
4. Reset the servo to factory defaults

Connecting Your Servo

It is recommended that you connect your DPC-11 in the following order for proper operation:

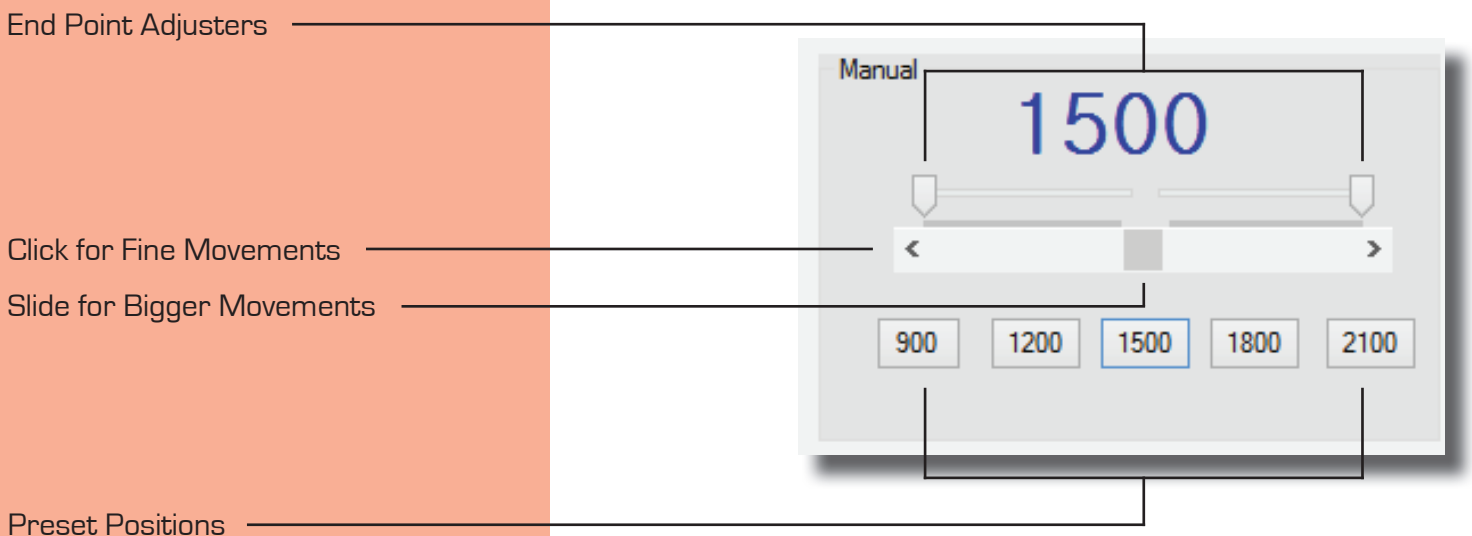
1. Connect DPC-11 to your PC computer
2. Launch the DPC-11 software
3. Connect your servo to the servo port
4. Connect a battery or other power source to the battery port

Now click the "Connect" button in the DPC-11 software. If your connections are correct, your screen will look something like this;

Using the DPC-11 D-XXX Series Test Functions:

Manual Position Test

Click on the pre-set buttons or move the slide bar with your mouse to manually move your servo's position.

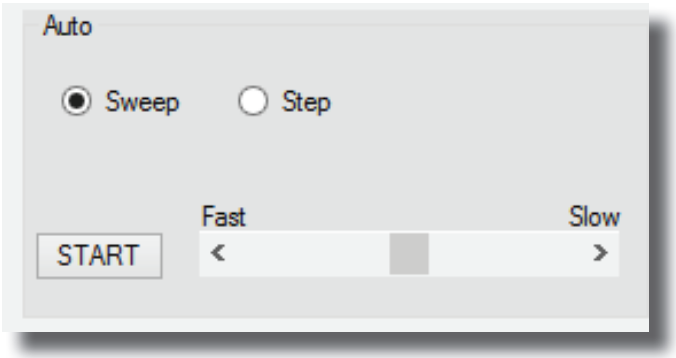


⚠**NOTE –** You can use the Endpoint Slide Bars bar to set the end points for both auto sweep and auto step functions as described below

Auto Sweep Positioning Test

The "Auto-Sweep" function will cycle a servo over and over from end point to end point.

1. Select Sweep on the menu and click the START button. The servo will then move from end point to end point within its travel limits.
2. Use the slide bar next to the START/STOP button to adjust the servo's travel speed.
3. Click STOP to end the process.



Automatic Step Positioning Test

1. Select Step and click the START button. Your servo will start moving from end point to end point in a series of small "steps".
2. Use the slide bar next to START/STOP buttons to adjust the servo's travel speed.
3. Click STOP to end the process.

FAIL SAFE Test

This feature tests the user programmed FAIL SAFE point of your servo.

By clicking the FS-Position button, the servo will travel to its preset Fail Safe position.

⚠**NOTE –** The FAIL SAFE point must be set by the user in the programming section under setting the FAIL SAFE Point.

Programming Your Hitec D Series Servos

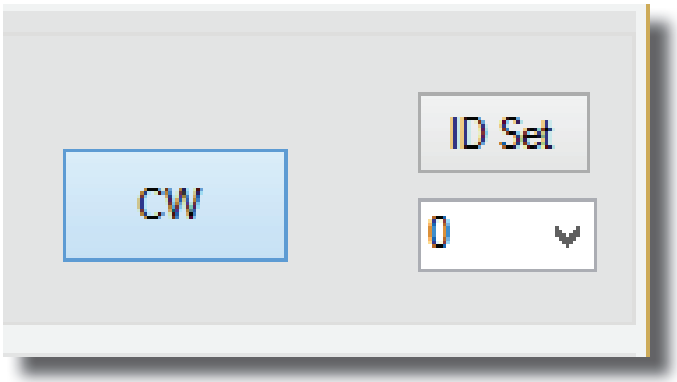
The following functions can be programmed into the HITEC D Series servos using the DPC-11.

It is recommended that you program your servos in the following order:

1. ID Setting
2. Direction of Rotation
3. Travel Speed (Slower)
4. Dead Band Width
5. Soft Start Percentage
6. Center and End Points
7. FAIL SAFE, On or Off
8. Overload Protection (OLP)

1. ID Setting

With ID Setting you can number your servos with a specific ID anywhere from 0-255. This can be helpful when programming new servos or for use when saving the parameters to a file.

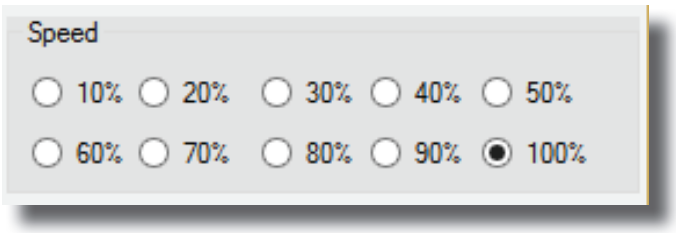


2. Direction of Rotation

Normal servo rotation based on 900 - 2100µs input signal is clockwise from left to right. You can change this to counterclockwise by clicking on the Direction of travel button as shown. The direction is shown as CW for clockwise and CCW for counterclockwise.

3. Travel Speed

This feature is useful for users who do not have servo speed control functions on their transmitter. Reducing the travel speed is a nice feature to slow down aircraft landing gear retracts. The servo speed function will only slow a servo down, you cannot make a servo travel faster than its rated speed. You can adjust the servos travel speed in ten proportional steps from a minimum speed (10%) up to its maximum speed (100%).

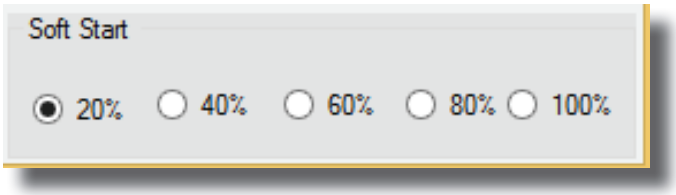


4. Dead Band Width

Some applications, such as using multiple servos on a single control surface, may require you to change the center “Dead Band” to prevent the servos from fighting each other. Users can adjust the center point “Dead Band Width” to one of five choices with 1 being the most sensitive and 5 the least sensitive.

5. Soft Start Setting

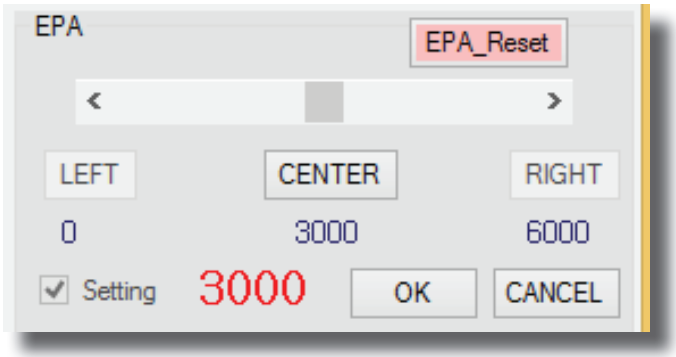
The soft start setting allows users to set how fast the servos react when first powered on. Using a slower soft start setting can prevent damage to your model by slowly moving the servo into position. Default setting is 20% (slowest). There are five settings from 20% to 100% which is instantaneous reaction.



⚠**NOTE –** This setting has no effect on the reaction speed of the servo once it is powered up.

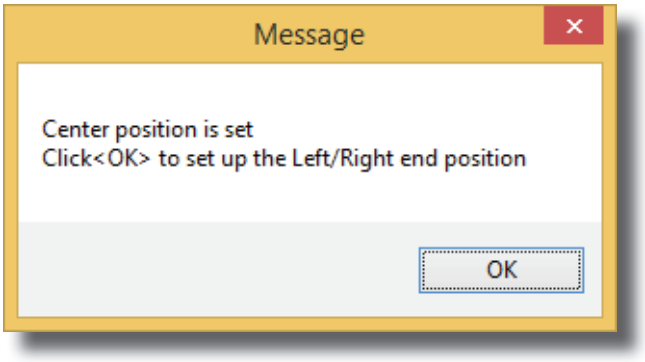
6. Center & End Point Setting (EPA)

With the EPA setup, users can customize the center point and left/right servo travel end points. This can be helpful to fine tune your model's control surfaces. To set the Center and Endpoints, click on the "Setting" box under the EPA programming section to enter the EPA programming Section.



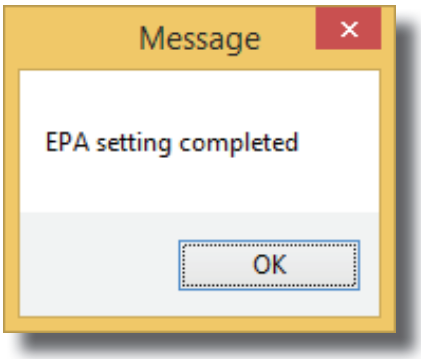
⚠**NOTE –** You can adjust the EPA setting by moving the slide in the adjustment bar to make larger adjustments. Click the arrows "< >" on each end to make single point adjustments, or you can click on the white space of the adjustment bar to move it in 50 point increments.

The first setting is the center point. When you have reached your desired center point, click on "CENTER" to set this point and continue on to the left and right endpoints. Click "OK" when prompted by the pop-up screen.



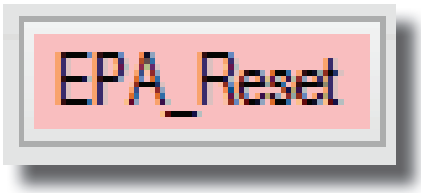
Now you will setup the left and right end points. When you have reached the desired end point, click either the "LEFT" or "RIGHT" button to confirm your setting. You will be notified when each one is set.

Once complete, click the OK button to exit the EPA setup.



7. Resetting EPAs

To set or reset your EPAs to the factory defaults, click on the "Setting" box under the EPA programming section then click on "EPA_Reset."



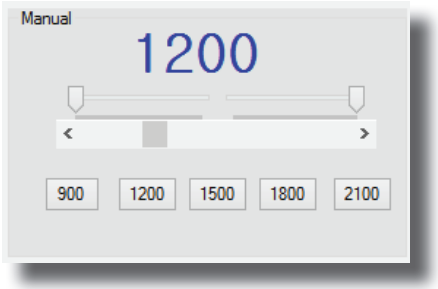
8. Fail Safe Position

By choosing to use the Fail Safe function you will need to set a preprogrammed travel point that the servo will travel to in the event the servo loses signal from the receiver.

⚠**CAUTION –** Program the Fail Safe point after setting the center and end points, otherwise it will change when you make those settings.

To set the Fail Safe point, first click "Fail Safe" under the Program section.

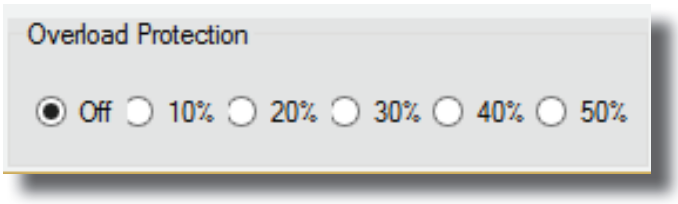
Next move your servo to the desired position by using the Manual positioning section as shown.



Once you have your desired Fail Safe position, click on the "FS-Position" button Fail Safe Test as seen in the illustration.

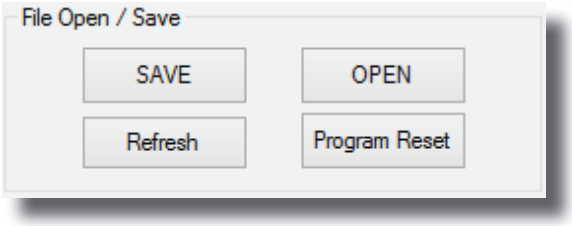
9. Overload Protection (OLP)

OLP is a "protection against servo damage" feature. When a servo is at "full stall torque" and the servo power amplifier is sending the maximum power to the servo motor, the OLP circuit will engage and reduce the power being sent to the motor. This act of power reduction could help prevent a critical failure of one or more servo components. When the servo is fully stalled, the OLP circuit will reduce the power from the servo amp to the servo, by the percentage selected. Selecting a value of 20%, will reduce the power sent to the motor by 20%. This effectively reduces the servo power to 80% of its potential. The factory default setting is always "OFF."



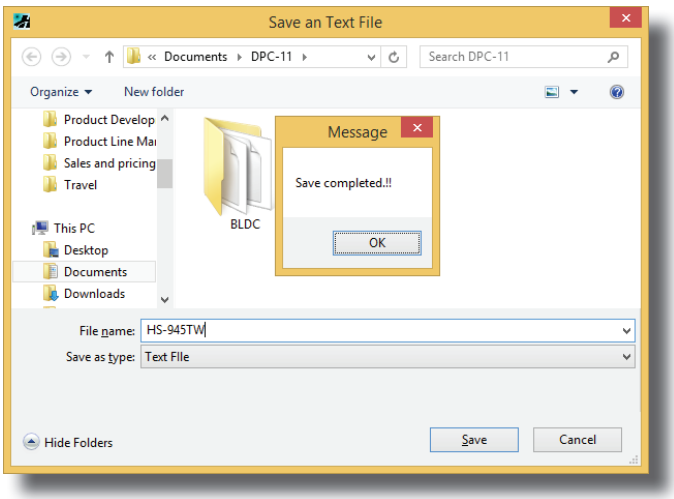
Loading and Saving Files, Restoring Factory Defaults

With the DPC-11 software, you have the ability to save and load servo parameter files. This is helpful when needing to setup multiple servos with the same parameters. The DPC-11 software also has the ability to restore the factory defaults file in the event the user setup doesn't operate correctly. The following details how to use these features.

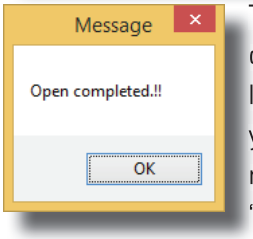


1. Save a File

Once you have completed your servo setup and written the setup to the servo, click on "SAVE" to open the save file dialog box. Navigate to the location that you want to save your file to, enter a name for your servo and click save. You have successfully saved your servo parameters to a file.



2. Load a File



To load a parameter file, click on "OPEN," navigate to the location where you have stored your file, and click on the file name to open. You will get the "Open completed" confirmation that the file has loaded.

3. Restoring Factory Defaults

To restore the servo to its factory default settings, click on the "Program Reset" button.

DPC-11

Universal Programming Interface for Hitec Programmable Servos

HSB-9XXX Servo Programming

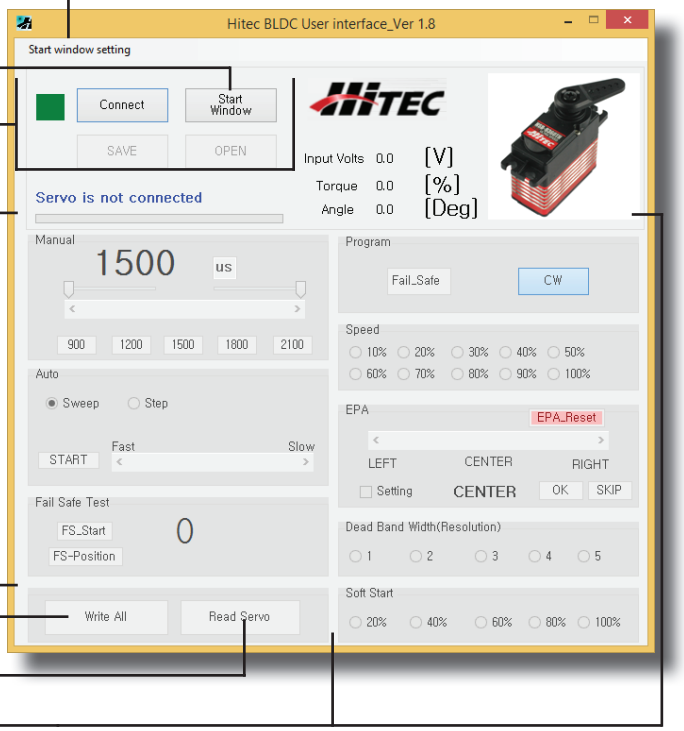
Introduction

⚠**WARNING –** Failure to follow these instructions can result in an undesired operation of your servo. Please read these instructions before attempting to program your servos.

The DPC-11 BLDC Programming Software gives the user of Hitec brushless servos unparalleled ability to adjust the parameters of their servos. Additionally, users can test their servos, save parameters to a file, load parameters from a file or restore the factory settings from a file.

User Interface

The main screen of the HSB-9XXX Series programming interface is broken into four sections, Connection, File Operations, Testing and Programming.



Change what window is shown when launching program.

Return to the main menu.

File operation section.

Testing section.

Write data to servo.

Read data from servo.

Programming section.

DPC-11

UNIVERSAL PROGRAMMING INTERFACE FOR HITEC PROGRAMMABLE SERVOS

HSB-9XXX Servo Programming cont.

Test Functions

Testing a servo's function can be critical to completing a successful project. Use these tests to "burn-in" new servos or to check for broken gears and other issues. The DPC-11 is capable of performing the following tests:

1. Servo Travel, using one of the following methods:
    a. Manual Positioning
    b. Automatic Sweep Positioning
    c. Step Positioning
2. FAIL SAFE programming position

Programming Functions

The following functions can be programmed into the HITEC BLDC servos using the DPC-11:

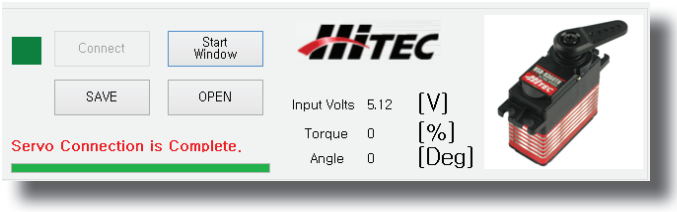
1. FAIL SAFE, On or Off
2. Direction of Rotation
3. Travel Speed (Slower)
4. Center and End Points (EPAs)
5. FAIL SAFE Position
6. Dead Band Width
7. Soft Start
8. "Save and Open" Parameter File
9. Load Factory Default Parameter File

Connecting Your Servo

It is recommended that you connect your DPC-11 in the following order for proper operation:

1. Connect DPC-11 to your PC computer
2. Launch the DPC-11 software
3. Connect your servo
4. Connect your battery

Now click the "Connect" button in the DPC-11 software. If your connections are correct, you should see the following screen:



Using the DPC-11 HSB-9XXX Series

Test Functions:
Manual Position Test

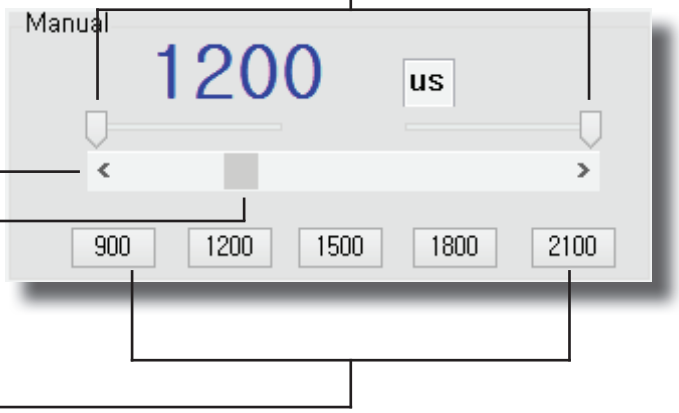
End Point Adjusters

⚠**NOTE –** You can use the Endpoint Slide Bars to set the end points for both auto sweep and auto step functions as described below.

Click for Fine Movements

Slide for Bigger Movements

Click on the pre-set buttons or move the slide bar with your mouse to manually move the position of your servos.

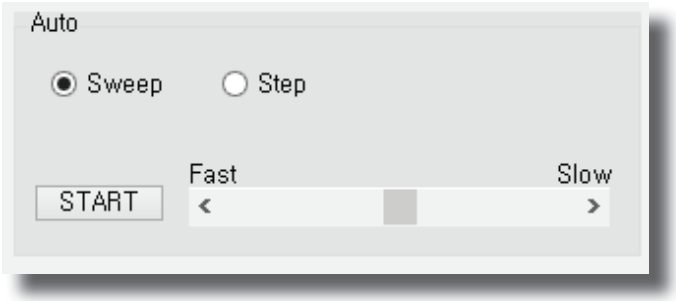


Preset Positions

Auto Sweep Positioning Test

The "Auto-Sweep" function will cycle a servo over and over from end point to end point.

1. Select "Sweep" on the menu and click the "START" button. The servo will then move from end point to end point within its travel limits.
2. Use the slide bar next to the "START/STOP" buttons to adjust the servo's travel speed.
3. Click "STOP" to end the process.



Automatic Step Positioning Test

1. Select "Step" and click the START button. Your servo will start moving from end point to end point in a series of small "steps."
2. Use the slide bar next to the START/STOP button to adjust the servo's travel speed.
3. Click STOP to end the process.

HSB-9XXX Servo Programming cont.

FAIL SAFE Test

This feature tests the user-programmed FAIL SAFE point of your servo.

⚠**NOTE –** The FAIL SAFE point must be set by the user in the programming section under. Setting the FAIL SAFE Point.

If not already, turn on the Fail Safe by clicking the "Fail_Safe" button under "Program" and click "FS_Start." The servo will travel to its preset Fail Safe position.

Programming your Hitec Brushless Servos:

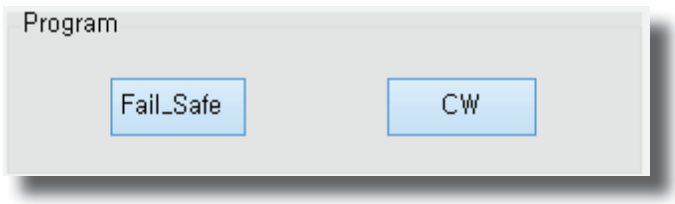
⚠**NOTE –** To make your changes permanent you must "write" the programming to the servo by clicking the WRITE ALL button. You can do this after each programming step or wait until you have finished all programming.

The following functions can be programmed into the HITEC BLDC servos using the DPC-11. It is recommended that you program your servos in the following order:

1. Direction of Rotation
2. Travel Speed (Slower)
3. Dead Band Width
4. Soft Start Percentage
5. Center and End Points
6. FAIL SAFE, On or Off

1. Direction of Rotation

Normal servo rotation based on 900 - 2100µs input signal is clockwise from left to right. You can change this to counterclockwise by clicking on the direction of travel button as shown. The direction is shown as CW for clockwise and CCW for counterclockwise.

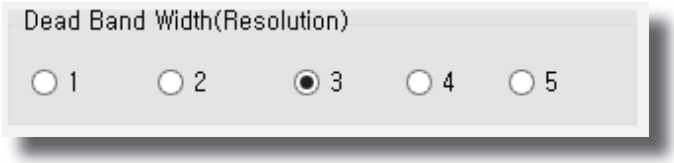


2. Travel Speed

This feature is useful for users who do not have servo speed control functions on their transmitter. Reducing the travel speed is a nice feature to slow down aircraft landing gear retracts. The servo speed function will only slow a servo down. You cannot make a servo travel faster than its rated speed. You can adjust the servo's travel speed in ten proportional steps from a minimum speed (10%) up to its maximum speed (100%).

3. Dead Band Width

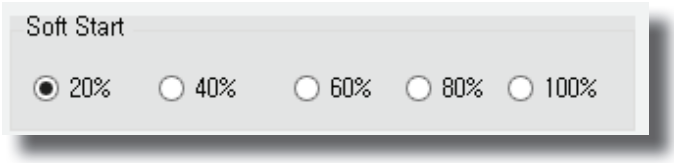
Some applications, such as using multiple servos on a single control surface, may require you to change the center "Dead Band" to prevent the servos from fighting each other. Users can adjust the center point "Dead Band Width" to one of five choices, with 1 being the most sensitive and 5 the least sensitive.



4. Soft Start Setting

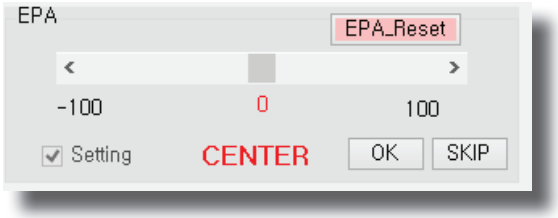
The soft start setting allows users to set how fast the servos react when first powered on. Using a slower soft start setting can prevent damage to your model by slowly moving the servo into position. Default Setting is 20% (slowest). There are five setting from 20% to 100%, which is instantaneous reaction.

⚠**NOTE –** This setting has no effect on the reaction speed of the servo once it is powered up.



5. Center & End Point Setting (EPA)

With the EPA setup, users can customize the center point and left/right servo travel end points. This can be helpful to fine tune your model's control surfaces. To set the Center and Endpoints, click on the "Setting" box under the EPA programming section.



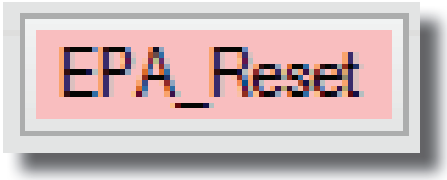
The first setting is the center point, click "OK" to continue. You can adjust the center point using three different methods.

⚠**NOTE –** You can slide the adjustment bar to move in larger steps. You can click the arrows "< >" on each end to make single point adjustments, or you can click on the white space of the adjustment bar to move it in 10 point increments.

When you have reached your desired center point, press okay to continue. You will now be prompted to setup the Left and Right End Points. To setup the left and right end points, click "OK" when prompted by the pop-up screens. Just like with the center point, you can adjust them in the same manner with the only exception being that clicking on the white space of the adjustment bar moves it in increments of 5 points.

6. Resetting EPAs

To set or reset your EPAs to the factory defaults, click on the "Setting" box under the EPA programming section. Then click EPA Reset.



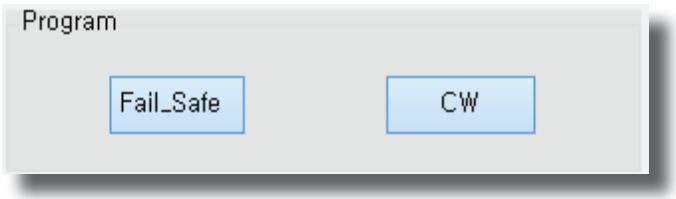
7. Fail Safe Position

⚠**CAUTION –** Program the Fail Safe point after setting the end and center points, otherwise it will change when you make those adjustments.

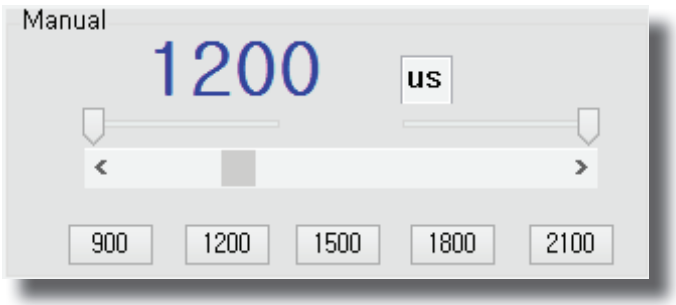
⚠**NOTE –** Remember to "Write All" of your settings to your servo before closing the DPC-11 software and disconnecting your servo. Failure to do so will result in lost programming data.

By choosing to use the Fail Safe function you will need to set a preprogrammed travel point that the servo will travel to in the event the servo loses signal from the receiver.

To set the Fail Safe point first click on the Fail Safe under Program section.



Next move your servo to the desired position by using the "Manual" positioning adjustments.



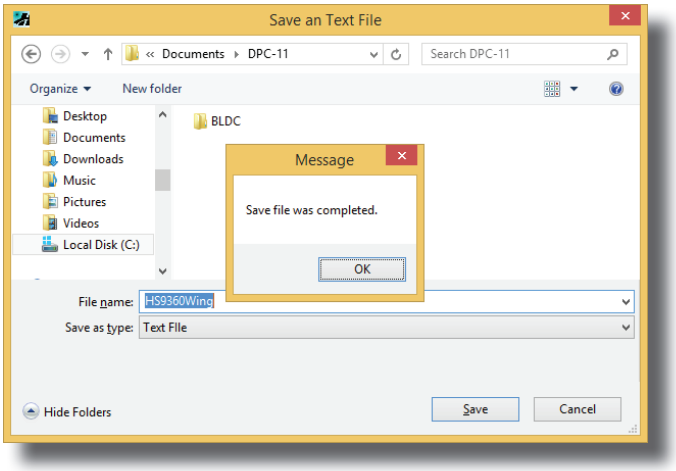
Once you have your desired Fail Safe position, click on the "FS-Position" button in the Fail Safe Test section to set the fail safe position. Once it is set, click the button again to exit the Fail Safe setup.

Loading and Saving Files, Restoring Factory Defaults

With the DPC-11 software you have the ability to save and load servo parameter files. This is helpful when needing to setup multiple servos with the same parameters. The DPC-11 software also has the ability to restore the factory defaults file in the event the user setup doesn't operate correctly. The following explains how to use these features.

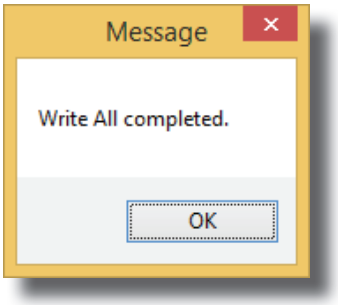
1. Save a File

Once you have completed your servo setup and written the setup to the servo, click on "Read Servo". Next click on "SAVE" to open the save file dialog box. Navigate to the location that you want to save your file to, enter a name for your servo and click "Save". You have successfully saved your servo parameters to a file.



2. Load a File

To load a parameter file, click on "OPEN", navigate to the location you have stored your file, and click on the file name you want to open. You will get the "File load has completed" prompt. Click "OK." Now click "Write All" to load the setting into the servo. Once you see the "Write All completed" message, click "OK." The parameters have been written to the servo.



3. Restoring Factory Defaults

To restore the servo to the factory default setting, click on "OPEN" and navigate to the directory in which you unzipped the DPC-11 software download. In the directory, "Factory Defaults," you will find the files for each servo model. Click on the file that matches the servo you want to restore and click on "Open." Once you see the file load has completed message, click OK. Now click "Write All" to load the setting into the servo. Once you get the "Write all completed" message, click "OK." The default parameters have been written to the servo.

⚠**CAUTION –** Restoring a factory default file other than the one specifically made for your servo model may result in undesired operation.

DPC-11

Universal Programming Interface for Hitec Programmable Servos

HS-7XXX/5XXX Series Programming

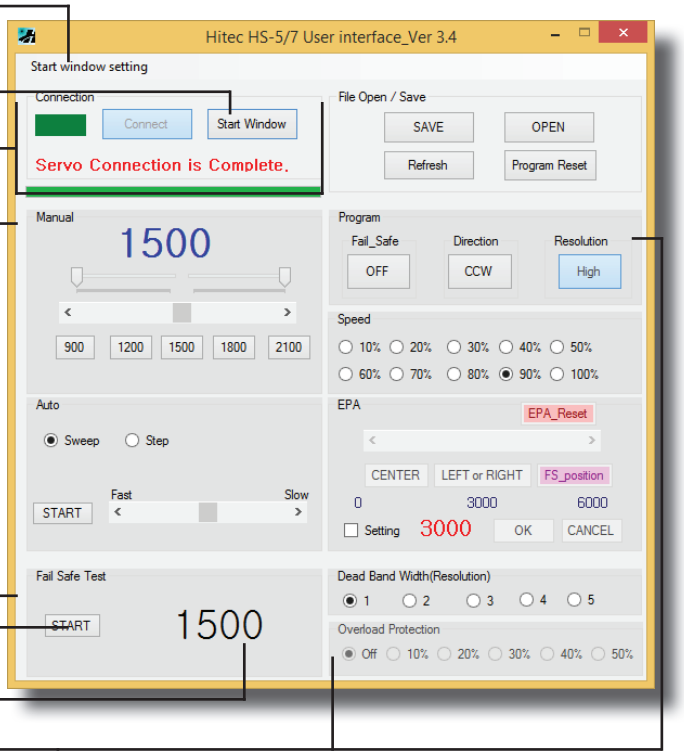
Introduction

The DPC-11 Programming Software gives the user the ability to adjust several parameters of the Hitec HS-7XXX/5XXX series of Digital Programmable Servos. Additionally users can test their servos to see that they are functioning properly. To program your HS-7XXX/5XXX Series servo, launch the DPC-11 software from the desktop icon and select HS-7XXX/5XXX Series from the startup menu.

⚠**NOTE –** If you always want the DPC-11 software to launch in HS-7XXX/5XXX Series Mode, you can change the start window setting in the upper left hand corner of the window.

User Interface

The main screen of the HS-7XXX/5XXX Series programming interface is broken into four sections, Connection, File Operations, Testing and Programming.



Test Functions

Testing a servo's function can be critical to completing a successful project. Use these tests to "burn-in" new servos or to check for broken gears and other issues. The DPC-11 is capable of performing the following tests:

1. Servo Travel using one of the following methods:
    a. Manual Positioning
    b. Automatic Sweep Positioning
    c. Step Positioning
2. FAIL SAFE programming position

Programming Functions

The following functions can be programmed into the HS-7XXX/5XXX servos using the DPC-11:

1. Direction of Rotation
2. Resolution (HS-7XXX Series)
3. Travel Speed (Slower)
4. Dead Band Width.
5. Overload Protection (HS-7XXX Series)
6. Center and End Points (EPA's)
7. FAIL SAFE Position
8. FAIL SAFE, On or Off.

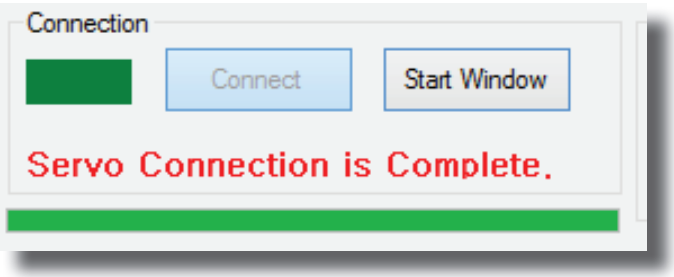
Connecting Your Servo

It is recommended that you connect your DPC-11 in the following order for proper operation:

1. Connect DPC-11 to your PC computer
2. Launch the DPC-11 software
3. Connect your servo to the servo port
4. Connect a battery or other power source to the battery port.

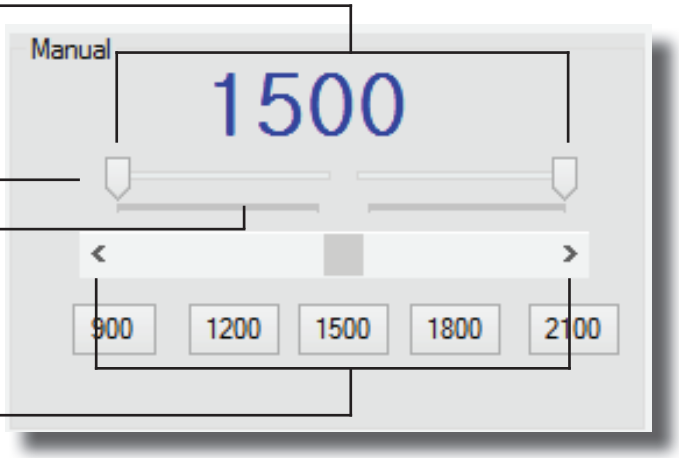
⚠**NOTE –** You may have to cycle the servo on and off more than once to establish a connection.

⚠**TIP –** When programming the HS-7XXX/5XXX series servos you are required to perform an off/on power cycle to store the data after each programming task. For this reason it is recommended you use an on/off switch between the battery and the DPC-11 to make it easier to perform the power cycles.



Using the DPC-11 HS-5XXX/7XXX Series Test Functions: Manual Position Test

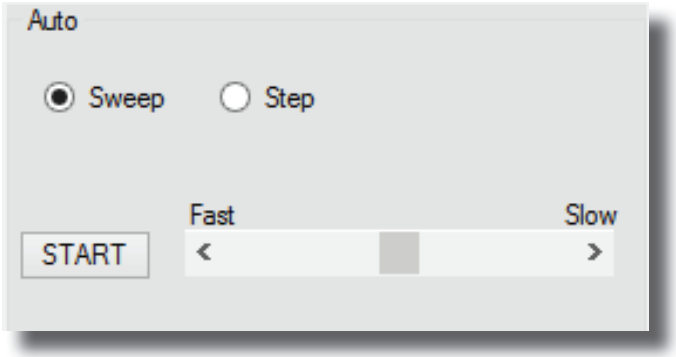
Click on the pre-set buttons or move the slide bar with your mouse to manually move your servos position.



Auto Sweep Positioning Test

The "Auto-Sweep" function will cycle a servo over and over from end point to end point.

1. Select Sweep on the menu and click the START button. The servo will then move from end point to end point within its travel limits.
2. Use the slide bar next to the START/STOP button to adjust the servo's travel speed.
3. Click STOP to end the process.



Automatic Step Positioning Test

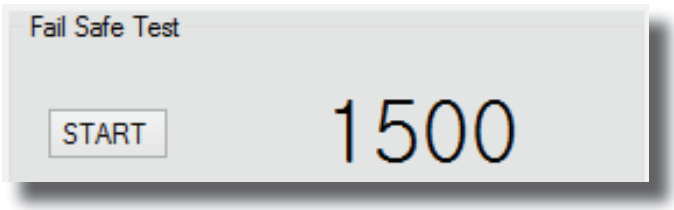
1. Select Step and click the START button. Your servo will start moving from end point to end point in a series of small "steps".
2. Use the slide bar next to START/STOP buttons to adjust the servo's travel speed.
3. Click STOP to end the process.

FAIL SAFE Test

This feature tests the user programmed FAIL SAFE point of your servo.

⚠**NOTE –** The FAIL SAFE point must be set by the user in the programming section under setting the FAIL SAFE Point.

By clicking the START button, the servo will travel to its preset Fail Safe position.



Programming your HS-5XXX/7XXX Series Servos:

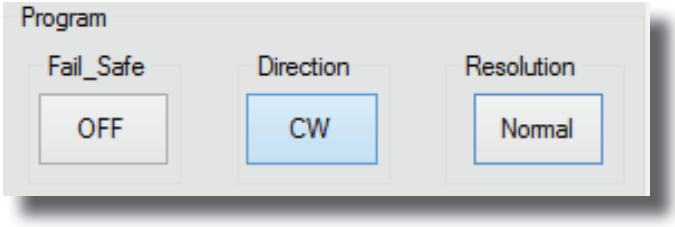
⚠**NOTE –** To make your changes permanent you must "write" the programming to the servo by cycling.

The following functions can be programmed into the HITEC D Series servos using the DPC-11. It is recommended that you program your servos in the following order.

9. Direction of Rotation
10. Resolution (HS-7XXX Series)
11. Travel Speed (Slower)
12. Dead Band Width.
13. Overload Protection (HS-7XXX Series)
14. Center and End Points (EPAs)
15. FAIL SAFE Position

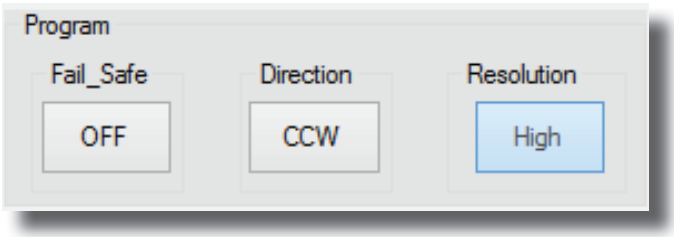
1. Direction of Rotation

Normal servo rotation based on 900 - 2100µs input signal is clockwise from left to right. You can change this to counterclockwise by clicking on the Direction of travel button as shown. The direction is shown as CW for clockwise and CCW for counterclockwise.



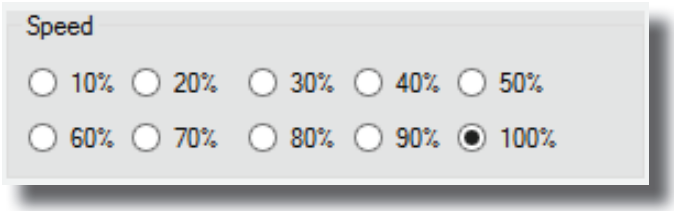
2. Resolution (HS-7XXX series)

This feature allows a choice of high or normal resolution for HITEC HS-7XXX Series digital servos. In "High Resolution Mode", the servo travels within a 120 degree angle, which allows the servo to move in smaller "steps", or at a "finer" level of resolution for extraordinary precision applications. In "Normal Resolution Mode", the servo travel is a wider 180 degree angle, resulting in larger range of motion delivering coarser "steps". This allows a wider range of travel, but at the cost of the very fine resolution provided by the high resolution mode.



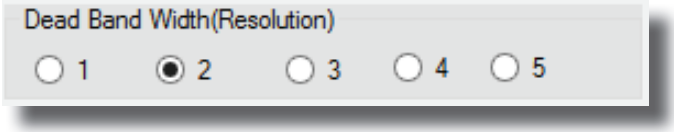
3. Travel Speed

This feature is useful for users who do not have servo speed control functions on their transmitter. Reducing the travel speed is a nice feature to slow down aircraft landing gear retracts. The servo speed function will only slow a servo down, you cannot make a servo travel faster than its rated speed. You can adjust the servos travel speed in ten proportional steps from a minimum speed (10%) up to its maximum speed (100%).



4. Dead Band Width

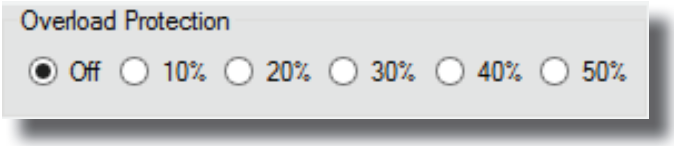
Some applications, such as using multiple servos on a single control surface, may require you to change the center "Dead Band" to prevent the servos from fighting each other. Users can adjust the center point "Dead Band Width" to one of five choices with 1 being the most sensitive and 5 the least sensitive.



5. Overload Protection (OLP)

OLP is a "protection against servo damage" feature. When a servo is at "full stall torque" and the servo power amplifier is sending the maximum power to the servo motor, the OLP circuit will engage and reduce the power being sent to the motor. This act of power reduction could help prevent a critical failure of one or more servo components. When the servo is fully stalled the OLP circuit will reduce the power from the servo amp to the servo, by the percentage selected. Selecting a value of 20%, will reduce the power sent to the motor by 20%. This effectively reduces the servo power to 80% of its potential. The factory default setting is always "OFF".

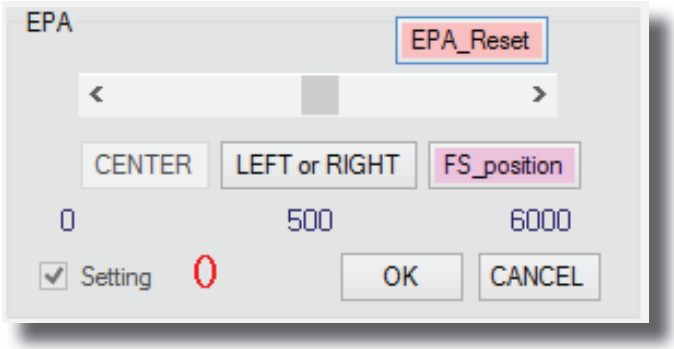
⚠**NOTE –** If OLP Rate is a function your HITEC digital servo supports, the OLP rate choice screen shown will be active.



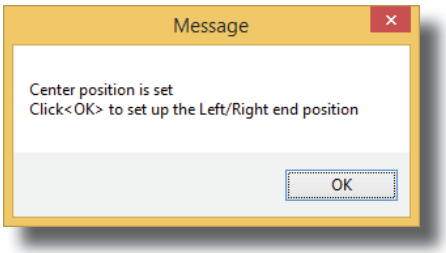
6. Center & End Point Setting (EPA)

With the EPA setup, users can customize the center point and left/right servo travel end points. This can be helpful to fine tune your models control surfaces. To set the Center and Endpoints, click on the "Setting" box under the EPA programming section to enter the EPA programming Section.

⚠**NOTE –** You can adjust the EPA setting by moving the slide in the adjustment bar to make larger adjustments. You can click the arrows "< >" on each end to make single point adjustments.

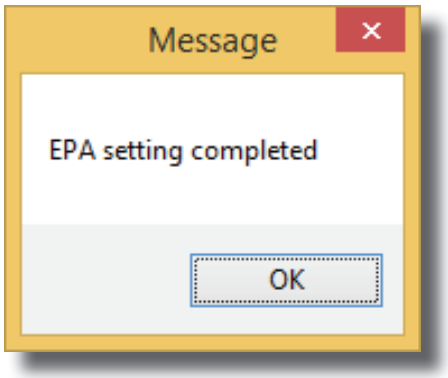


The first setting is the center point. When you have reached your desired center point click on "CENTER" to set this point and continue on to the left and right endpoints. Click "OK" when prompted by the pop-up screen.



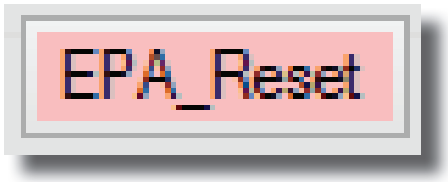
Now you will setup the left and right end points. When you have reached the desired end point click either the "LEFT" or "RIGHT" button to confirm your setting. You will be notified when each one is set.

Once complete, click the OK button to exit the EPA setup.



7. Resetting EPAs

To reset your EPAs to the factory defaults, click on the "Setting" box under the EPA programming section then click EPA Reset. A message will appear indicating the reset was successful.



8. Fail Safe Position

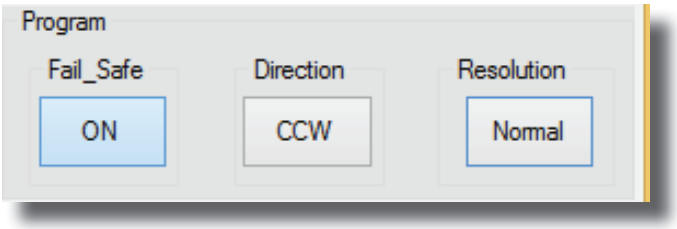
⚠**CAUTION –** Program the Fail Safe point after setting the center and end points, otherwise it will change when you make those settings.

By choosing to use the Fail Safe function you will need to set a preprogrammed travel point that the servo will travel to in the event the servo loses signal from the receiver.

To set the Fail Safe point, first click on the "Setting" box under the EPA programming use the arrows or sliders to move the servo into the position you want the servo to hold. Click on the "FS_position" button to set the position.

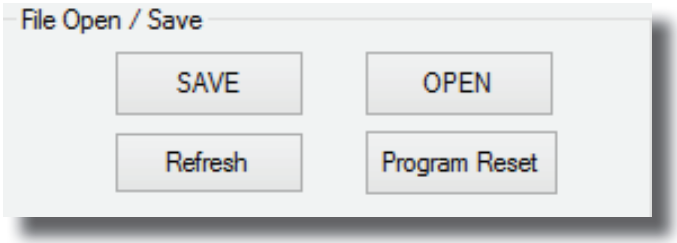
9. Fail Safe On/Off

Once you have your desired Fail Safe position set, click on the "Fail Safe On" button to activate it. You can check the position using the fail safe position test.



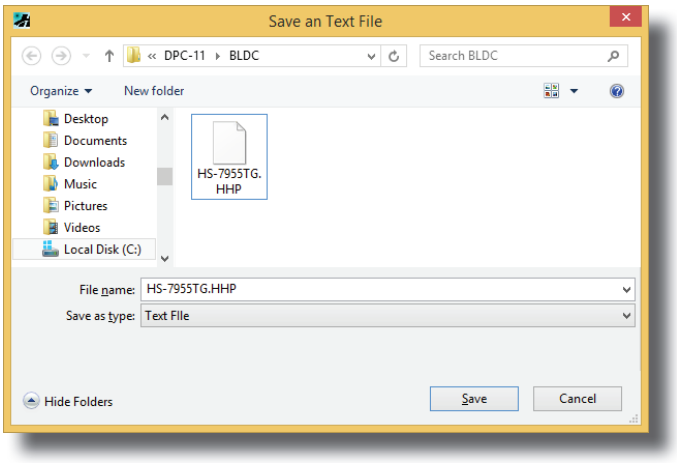
Loading and Saving Files, Restoring Factory Defaults

With the DPC-11 software you have the ability to save and load servo parameter files. This is helpful when needing to setup multiple servos with the same parameters. The DPC-11 software also has the ability to restore the factory defaults file in the event the user setup doesn't operate correctly. The following details how to use these features.



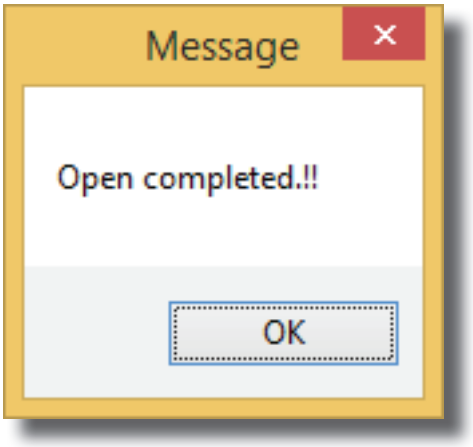
1. Save a File

Once you have completed your servo setup and written the setup to the servo click on "SAVE" to open the save file dialog box. Navigate to the location where you want to save your file. Enter a name for your servo and click "Save." You have successfully saved your servo parameters to a file.



2. Load a File

To load a parameter file click on "OPEN," navigate to the location you have stored your file, and click on the file name to open. You will get the "Open completed" confirmation that the file has loaded.



3. Restoring Factory Defaults

To restore the servo to the factory default setting, click on the "Program Reset" button.

Help is available from the Hitec office through phone support and e-mail. Our US office is generally open Monday thru Friday, 8:00AM to 4:30PM PST.

Phone: (858) 748 - 8440
E-mail: service@hitecrcd.com
Web: www.hitecrcd.com